



**YOGYAKARTA STATE UNIVERSITY
FACULTY OF MATHEMATICS AND NATURAL SCIENCES**

SYLLABI

FRM/FMIPA/063-00
1 April 2010

Faculty	: Mathematics and Natural Sciences
Study Program	: Physics
Course / Code	: Practicum of Atomic Physic
Credit	: Theory: 0 Practice: 1 sks
Semester	: 5st
Prerequisite/Code	: -
Professor	: -

I. Course Description

This course includes of the experiments in atomics physics. By conducting the experiments, the students could understand the phenomena that occurred in atomic level. The experiments in atomic phisisc consist of: the measuement of e/m ; Hall effects; photoelectric effects; atomic spectroscopy; and Franck-Hertz experiment.

II. Standard of Competence

After conducting this course, the students have the understanding of several concepts in atomic physics by observing the phenomenas in atomic level, conducting experiments, analyzing of the data, and concluding the result of the experiment.

III. Activity

Mee-ting	Basic Competence	Essentials Concept	Learning Strategy	Learning Materials/ References	Character
1st	Introduction 1: The Apparattus of the Balmer Serries Experiment and its procedure to operate.	Balmer serries; energy levels	Discussion and information	Works Sheet	Confident, complying, appreciating
2nd	Introduction 2: The Apparattus of the Atomic	Spectral serries;	Discussion and	Works Sheet	Confident complying,

	Spectroscopy and its procedure to operate.	discrete spectral	information		appreciating
3th	Introduction 3: The Apparatus of the e/m experiment and its procedure to operate.	The motion of electrons in the magnetic field	Discussion and information	Works Sheet	Confident complying, appreciating
4th	Introduction 4: The Apparatus of the Hall Effects experiment and its procedure to operate	Hall Voltage; Hall elements; magnetic field	Discussion and information	Works Sheet	Confident complying, appreciating
5th	Introduction 5: The Apparatus of the Franck-Hertz experiment and its procedure to operate.	Inelastic collision; quantification of atomic energy	Discussion and information	Works Sheet	Confident complying, appreciating
6th	Introduction 6: The Apparatus of the Photoelectric Effects experiment and its procedure to operate.	Photon; photoelectric effects	Discussion and information	Works Sheet	Confident complying, appreciating
7th	The Balmer Series Experiment	Balmer series; energy levels	Experiment	Works Sheet	Responsible, thinking logically, creatively, innovatively, discipline, curious,
8th	The Atomic Spectroscopy Experiment	Spectral series; discrete spectral	Experiment	Works Sheet	
9th	The e/m experiment	The motion of electrons in the magnetic field	Experiment	Works Sheet	
10th	The Hall Effects experiment	Hall Voltage; Hall elements; magnetic field	Experiment	Works Sheet	
11th	The Franck-Hertz experiment	Inelastic collision; quantification of atomic energy	Experiment	Works Sheet	Responsible, thinking logically, creatively, innovatively, discipline,

12 th	The Photoelectric Effects experiment	Photon; photoelectric effects	Experiment	Works Sheet	curious
13 th	Presentation 1	Balmer series, atomic spectroscopy	Oral presentation	paper	
14 th	Presentation 2	e/m of electron, Hall effects,	Oral presentation	paper	
15 th	Presentation 3	Franck-Hertz experiment photoelectric effects	Oral presentation	paper	
16 th	Examination				

IV. Reference

Compulsory:

A. Yusman Wiyatmo. 2010. *The Manual Procedure of the Atomic Physics Experiment*. Yogyakarta: Physic Education Department.

Additional:

B. Jerremy I. Pfeffer and Sholomo Nir. 2000. *Modern Physics, An Introductory Text*. London: Imperial College Press.

V. Evaluation

No	Componen	Worth
1	Participation	10 %
2	Report	40 %
3	Presentation	25%
4	Exam	25%
		100%

Yogyakarta, January 31th 2013

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